FACTORS AFFECTING THE CONTRACTOR'S MARK-UP SIZE DECISION IN MALAYSIA

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A project report submitted in partial fulfillment of the
requirements for the award of the degree of
Master of Science (Construction Management)

Faculty of Civil Engineering
Universiti Teknologi Malaysia

JUNE 2009

To my beloved parent, siblings, and friends
Thanks for your never ending love and support

ACKNOWLEDGEMENTS

First of all, I would like to express my sincere appreciation to my project supervisor, Assoc. Prof. Dr. Aminah Md Yusof for her generous advice, patience, guidance and encouragement throughout the duration of my dissertation.

Secondly, I would like to express my gratitude to all participated contractors, who generously spent their precious time to participate in the questionnaire survey of this project. Their honest information, opinions and comments are very useful indeed.

Furthermore, I would also like to express my sincere thanks to my senior and friends, who has given me a lot of guidance and advice on this project.

Finally, I am most thankful to my parents and family for their continuous support and encouragement given to me unconditionally in completing this dissertation. Without the contribution of all those mentioned above, this work would not have been possible.

ABSTRACT

Construction industry is a competitive industry and the only possible way for a contractor to survive is by winning the tenders and making profit. Therefore, a "right" mark-up size is essential for contractor which to maximum possible profit, at the same time keeping its bid at a competitive level. Hence possessing a sound knowledge of the factors affecting the contractors' mark-up size decision is imperative in identifying the "right" mark-up size in bidding. Thus, this project is to investigate the factors affecting the mark-up size decision. It seeks to determine the factors affecting the mark-up size decision and analyzes the perceived importance of various factors in different contractor size's evaluation. The project extent investigates on the current practices in contractors' mark-up size decision. Questionnaire conducted and distributed to the respondents who are the medium and large-size of contractors in Johor Bahru, Malaysia. This finding of project shows that there are top ten important factors affecting mark-up size decision such as overall economy, competition, need for work, size of project, project cash flow, and so on. Besides, the ranking of most influence category of factor were followed by project characteristics, company characteristics, economic situation, project documentation and bidding situation. Finding also indicates that the different of perceived important of factors between medium and large-size contractors' evaluation. Seven factors which are degree of difficulty, uncertainly in cost estimate, need for work, availability of qualified staff, time allowed submitting bids, bidding document price and risk involved in investment has been highlighted. The finding shows that the most preference mark-up size is 10 % to 15%. Experience, previous record and market survey are commonly practiced by contractors in determining their mark-up size. Unfortunately, the bidding models were not utilized by contractors since they are not sufficient information to effectively use it and the complexity of these models.

ABSTRAK

Industri pembinaan adalah industri yang sangat kompetetif dan satu cara untuk berjuang terus bertapak dalam industri tersebut adalah mendapatkan tender dan memaksimakan keuntungan. Saiz "*mark-up*" yang sesuai adalah penting untuk menjaminkan keuntungan yang maksimum dan kompetetif. Shash and Abul-Hani (1992) menekankan bahawa pengetahuan mengenai faktor mempengaruhi keputusan saiz *"mark-up"* kontraktor adalah sangat mustahak untuk menentukan saiz *"mark-up"* yang sesuai. Kajian ini akan mengenalpasti faktor-faktor yang mempengaruhi keputusan saiz *"mark-up"* dan menganalisa kepentingan faktor-faktor dalam penilaian mengikut perspektif kontraktor yang berlainan. Penyelidikan ini juga menganalisa amalan semasa bagi kontraktor dalam menentukan keputusan saiz *"mark-up"*. Soalan penyelidikan ini diagihkan kepada responden iaitu kontraktor yang bersaiz sederhana dan besar di Johor Bahru, Malaysia. Keputusan penyelidikan ini menunjukkan 10 faktor utama yang mempengaruhi harga tender seperti ekonomi, kompetetif, keperluan kerja, saiz projek, aliran tunai projek, dan sebagainya. Kategori yang paling berpengaruh diikuti cirri-ciri projek, ciri-ciri syarikat, situasi ekonomi, pendokumenan projek dan situasi bidaan. Keputusan penyelidikan juga menunjukkan kepelbagaian ketara dalam penilaian kontraktor yang berlainan saiz. Terdapat tujuh faktor menunjukkan perbezaan yang ketara seperti tahap kesukaran, ketidakpastian dalam anggaran kos, keperluan kerja, kakitangan yang bertauliah, jangkamasa penyerahan tender, harga dokumen tender dan risiko dalam perlaburan. Selain daripada itu, saiz *"mark-up"* yang biasa ditentukan oleh kontraktor adalah 10 % hingga 15%. Pengalaman, rekod terdahulu, dan penyelidikan pasaran banyak diamalkan oleh kontraktor dalam menentukan saiz *"mark-up"*. Malangnya, model bidaan tidak digunapakai sepenuhnya oleh kontraktor disebabkan mereka tidak mempunyai maklumat yang mencukupi untuk melaksanakannya secara berkesan dan kerumitan model-model tersebut.

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CHAPTER 1

INTRODUCTION

1.1 Introduction

Construction industry covers a wide range from sub-urban homes to multi-storey skyscrapers; from sidewalks to dam, tunnel, bridges, highway and rapid transit system that contributes substantially to the economic growth of country. Therefore, construction industry is an important economic sector of country and mostly contributes to 3%-6% of overall Gross Domestic Product. (Fahlin Abdullah, 2004).

In other words, construction industry is stimulated by the economy of the country. During economic development, it will generate additional demand for construction activities and construction markets as incomes rise. Construction activity increases as companies expand their existing facilities or build new premises, more dwellings are purchased and developers and institutions invest in property. Adversely, the development of construction industry will recess during the economic crisis and

recession. (Ofori, 1990). Therefore, construction industry will experience different structural changes from time to time because the economy develops over time.

In Malaysia, the current economic is more challenging since the global economic slowdowns which have been associated with the current crisis in the world's financial system. The current crisis start from United States as the problems in the credit industry culminated in the bankruptcy filing of Lehman Brothers. (Levy, 2008). This phenomenon has left the construction industry facing its toughest challenges and directly influences the changes in the aspects of construction demands, systems of construction markets, and conditions of competition. Therefore, it is clear that construction industry in Malaysia today is entering a period of deflation.

Moreover, the rapid expansion of construction works after the economy recovered from the mid eighties recession led to an increased number of construction firms in the industry. Especially the implementation of Vision 2020 in 1991 was enhancing the growth of the construction industry in Malaysia. (Fahlin Abdullah, 2004). As at January 2008, a total of 63,465 local contractors were registered with CIDB under various grades. (CIDB, 2008). During this recession period, the construction market will became more competitive as the increase of construction firms at same time decrease of construction demand.

As a result, contractors today are facing more challenges in this fiercely competitive construction industry. Thus, the only possible way for a contractor to survive in today's highly competitive construction market are winning tenders and making profit. (Egemen and Mohamed, 2007). But is it possible for a contractor winning a tender simultaneously making a good profit? It is another new challenges for contractors since the widely uses of particular bidding method in construction industry, its competitive bidding.

In construction industry, there are two ways through which a contractor may be awarded a construction project, negotiation with an owner or competitive bidding. Nowadays, the construction industry becomes more competitive and low profit margin has great influenced by the widely uses of competitive bidding. Under the competitive bidding, the client's professional advisers will invite the contractors to submit tenders for the client's proposed development through the advertisement in the local, national and technical press. As a result, stack of the interested contractors will participant in the tender and increase the competitive in getting a job of the contractor. (Clough and Sears, 1994).

Besides, competitive bidding also influences the contractor's profit margin due to the fierce competitive among the contractors in getting a job. According to Shash & Abul-Hani (1992) and Mohammed & Hong (2002), competitive bidding for construction projects usually awarded to the lowest responsible bidder. During this recession period, the lowest bidding prices are driven down by the competitive pressures. (Park, 1979). As a result, the contractors are forced to reduce their profit margin in bidding and tried to bid the project as low as possible to getting a job.

In this highly competitive construction business only the strong would survive. In such situation, contractors are forced to develop a strategy which can improve their competitiveness. (Shash and Abul-Hani, 1992). Park (1979) stated that "even a bad plan is better than no plan at all". Thus, contractors are encouraged to setting a right mark-up as the common bidding strategies. This is because a right mark-up plays important role in competitive bidding in term to maximize the possible profit, at the same time keeping its bid at a competitive level. (Clough and Sears, 1994). As a result, a right mark-up size is able enhances the probability of the contractors to winning a tender, yet maximizes possible profit for the job.

However, how to determine the right mark-up size is not an easy task. The complexity of the issue is magnified by many influencing factors and the uncertain potential outcome of decision. This complexity is the source of the difficulty faced by many contractors in determining the right mark-up sizes which will assure them of winning sufficient projects with reasonable profits. (Shash and Abul-Hani, 1992).

1.2 Statement of Problems

In bidding process, the contractors are facing the two crucial decisions. The first is the decision of whether to bid or not to bid for a project, when an invitation has been received. If yes, the second decision is associated with the determination of the mark-up size. The mark-up size may vary from 5 to more than 20 percent of the job cost and represents an allowance for profit plus other items such as general overhead and contingency. However, to determine the mark-up size is not an easy task because it is affecting the probability of getting a job and its chances of making a reasonable profit. (Clough and Sears, 1994).

In determining a mark-up size, the contractor is facing two seemingly incompatible and contradictory objectives. He must bid high enough to make a profit yet low enough to get a job at the same time. It is difficult for a contractor to balance between both at the same time because a bid low enough to assure getting a job will invariably is too low to guarantee a profit. On the other hand, a bid high enough to assure an adequate profit margin usually has only a remote chance of winning the job. (Park, 1979)

According to Egemen and Mohamed (2007), right mark-up is the optimum balance between a bid price that is as 'practically low' as possible to win the tender and as 'practically high' as possible to maximize profit. But is it possible for contractor to balance between both at the same time? These unpleasant alternatives place the contractor in an extremely awkward position.

Since the mid-1950 years, many researchers have tried to eradicate the difficulty by developing mathematical models as bidding strategy to determine the right mark-up size. The two best-known and most widely accepted of these bidding strategies are known as the Friedman Model and the Gates Model. (Clough and Sears, 1994). However, the utilization of these mathematical models is not widely spread among contractors to aid them in determining the proper mark-up size while the majority uses subjective judgment. (Ahmed and Minkharah, 1988).

As discussed in earlier, the determination of the right mark-up is an essential task of all contractors. However, is it possible to determine the right mark-up that will help the contractor winning the bidding and at the same time maximize his profit? Neither mathematical models nor pure subjective judgment proved to be the answer to this difficult question.

Contractors need to use a more rational way to determine their mark-ups. This way of thinking is essential for all contractors because the awarding system depends basically on the lowest bidder criterion. Thus possessing a sound knowledge of the factors affecting the contractors' mark-up size decision is imperative in identifying the right mark-up size in bidding. (Shash and Abul-Hani, 1992). Hence study should be carried out to investigate what are the factors affecting the contractor's mark-up size decision.

1.3 Research Aim and Objectives

This study aims at statistically investigate factors affecting the contractor's mark-up size decision in Malaysia. To achieve the aims, the following objectives are formulated:

Objective 1: To determine the factors affecting the mark-up size decision by contractors.

Objective 2: To analyze the perceived importance of the various factors considered in the mark-up size decision in different contractor size's evaluation.

Objective 3: To investigate the current practices in contractors' mark-up size decision.

1.4 Research Scopes and Limitations

As earlier research, Ahmad and Minkarah (1988) studied the method by which contractors in the USA to determine the mark-up size. They found that contractors consider and evaluate many factors subjectively when they decide on mark-up sizes. In this research, they are identifying 31 factors affecting the bid mark-up decisions made by the top general contractors in the USA. Shash and Abdul-Hadi (1992) further developed this research and presented 37 factors affecting the bid mark-up size decision, with their relative importance to contractors operating in Saudi Arabia. Shash (1993) revised the questionnaire by Ahmad and Minkarah (1998) and identifying 55 potential factors affecting in tendering decisions by top UK contractors.

Shash and Abdul-Hadi (1993) conducted a further research regarding the effect of contractor size on mark-up size decision in Saudi Arabia. In this study, the 37 factors same as previous research (Shash and Abdul-Hadi, 1992) but contractor size had divided into large, medium and small. Thus, this research is initiated to investigate vary significant of the various factors in the different size of contractors' evaluation. Dulaimi and Hong (2002) further developed this issue which investigated impact on contractor size on the contractor's attitude to mark-up decision. They suggested that 40 factors influencing the contractor bid mark-up decision of large and medium-size in Singapore.

The author found out that Shash and Abdul-Hadi (1993) and Dulaimi and Hong (2002) had done the same research related to effect of contractor size on mark-up size decision. Hence, a similar study will simultaneous conducted by author in Malaysia. Study wills extent the existing research by investigating into the factors affecting the contractor's mark-up size decision in Malaysia. The scope of this research by is limited to the medium and large-size contractors in Johor Bahru, Malaysia. Also, emphasis is given to the competitive bidding method and traditional procurement method in construction contracting.

1.5 Research Significance

i. Guide contractors to focus their attention on the most important factors that affecting the mark-up size decision.
ii. Help contractors to enhance their chances of assigning the right mark-up size to the right job.
iii. Sets the foundation for the development of an expert system that will help a contractor decide on how much mark-up to add his cost estimate.

1.6 Research Methodology

a) Preliminary Study

This stage includes observations on the current issues and problems on construction industry. This was done by analysis of documents from various sources such as text books, journals, electronic media, internet, reports, conference papers and previous research. Discussion with the lecturers, senior and classmate also carried out in a purpose to gain a better understanding of the issues and problems to be studied. As a result, the researcher was able to determine the topic, main issues and problems, aims, objectives and scope of research.

b) Data Collection

This stage includes utilizing the questionnaires to collect the primary data. The questionnaire will be design which aim to investigate the different factors affecting the mark-up size decision and sent to medium and large-size contractors in local construction industry. Besides, the secondary data was gathered from books, journals, reports, articles, thesis, conference papers and internet.

c) Data Analysis

All of the data collected will be analyzed using computer software such as Statistical Package of the Social Sciences (SPSS). Analysis methods will be determined according to the suitability of each variable. Among the methods to be used are such as One-sample t-test, Chi-square test, Mann-whithey test, and so forth. As a result, the research objectives were presented in the form of graphs, charts and tables.

d) Writing-up

This stage includes the process of documentation together with summaries, conclusion, and some future research recommendations relevant to this topic.

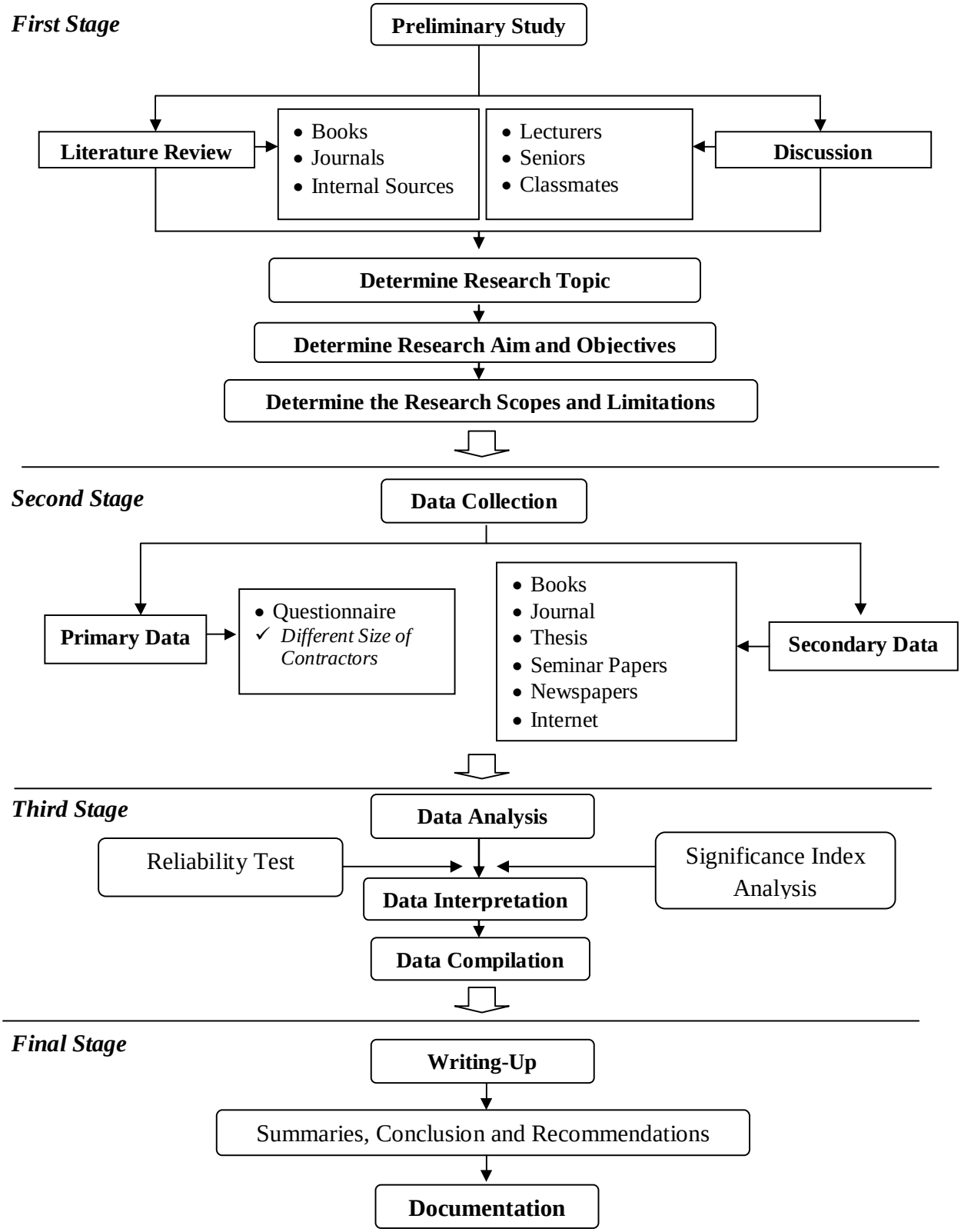

Figure 1.1: Flow Chart of Research Methodology